SPECIFICATION AMENDMENTS

Replace the paragraph beginning at page 6, line 17 with:

Figs. 4(A), 4(B), and 4(C) are explanatory graphs of time-frequency transformation and knocking determination function values in the knocking detection apparatus and detection method according to the first embodiment of the invention; and

Replace the paragraph beginning at page 6, line 22 with:

Figs. 5(A), 5(B), and 5(C) are explanatory graphs of time-frequency transformation and knocking determination function values in a knocking detection apparatus and detection method according to a second embodiment of the invention.

Replace the paragraph beginning at page 7, line 3 with:

Figs. 1 to 4(C) are diagrams describing a knocking detection apparatus and detection method according to a first embodiment of the invention. Fig. 1 is a block diagram showing the schematic configuration of the knocking detection apparatus and detection method, Fig. 2 is a block diagram describing ion current sampling, Fig. 3 is an explanatory graph showing sampled intervals in ion current detection, and Figs. 4(A), 4(B), and 4(C) are explanatory graphs describing the result of time-frequency transformation of ion currents and knocking determination function values.

Replace the paragraph beginning at page 12, line 16 with:

Figs. 4(A), 4(B), and 4(C) show results ~~where it is~~ applied to specific data in this embodiment. The determination function values shown in Fig. 4(C) are obtained from the ion current shown in Fig. 4(A), and knocking can be reliably determined by making the threshold Th 0.1. The change in the intensity of the time-frequency components catches the vibration generated by knocking, the values of the determination function greatly exceed the threshold, and knocking is clearly detected. It should be noted that, although a case is described as an example where Th = 0.1 in this embodiment, the effectiveness of the invention is not limited to this value.

Replace the paragraph beginning at page 13, line 3 with:

Figs. 5(A), 5(B), and 5(C) are explanatory graphs describing ion current time-frequency transformation results and knocking determination function values in a knocking detection apparatus and detection method according to a second embodiment of the invention. In the first embodiment, the time-frequency components were determined by a ~~short-time~~ fast Fourier transform using a Hanning window function, but in the present embodiment, the window function of equation 6 is used to obtain a Gabor wavelet component.

Replace the paragraph beginning at page 13, line 14 with:

Figs. 5(A), 5(B), and 5(C) show the results when equation 6 is applied to specific data in this embodiment, and show that the state of the occurrence of knocking greatly exceeds the threshold Th = 0.1 and can be determined. Thus, even in this embodiment, knocking is clearly detected, similar to the first embodiment. It should be noted that, although $L = 800/(M-1)^2$ was used as an example for L in the above equation 6 in this embodiment, the effectiveness of the invention is not limited to this value.